5. Troubleshooting

5-1 Items to be checked first

1) The input voltage should be rating voltage ±10% range.
   The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
   The indoor unit and the outdoor unit shall be linked by 6 cables.
   Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
   Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The STD operation indication LED blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the IN DOOR FAN should operate. In a HEAT operation mode, the compressor does not operate at a room temperature lower than the setting temperature that indoor fan should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO or DRY mode.	The speed of the indoor fan is set to LL in DRY mode. Fan speed is 5 steps is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	Compressor of the outdoor unit is operating although it is turned off in a HEAT mode.	When the unit is turned off while de-ice is activated, the compressor continues operation for up to 9 minutes (maximum) until the deice is completed.
6	Timer LED only of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
7	The compressor and indoor fan stop intermittently in HEAT mode.	The compressor and indoor fan stop intermittently if room temperature exceeds a setting temperature in order to protect the compressor from overheated air in a HEAT mode.
8	Indoor fan and outdoor fan stop operation intermittently in a HEAT mode.	The compressor operates in a reverse cycle to remove exterior ice in a HEAT mode, and indoor fan and outdoor fan do not operate intermittently for within 20% of the total heater operation
9	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

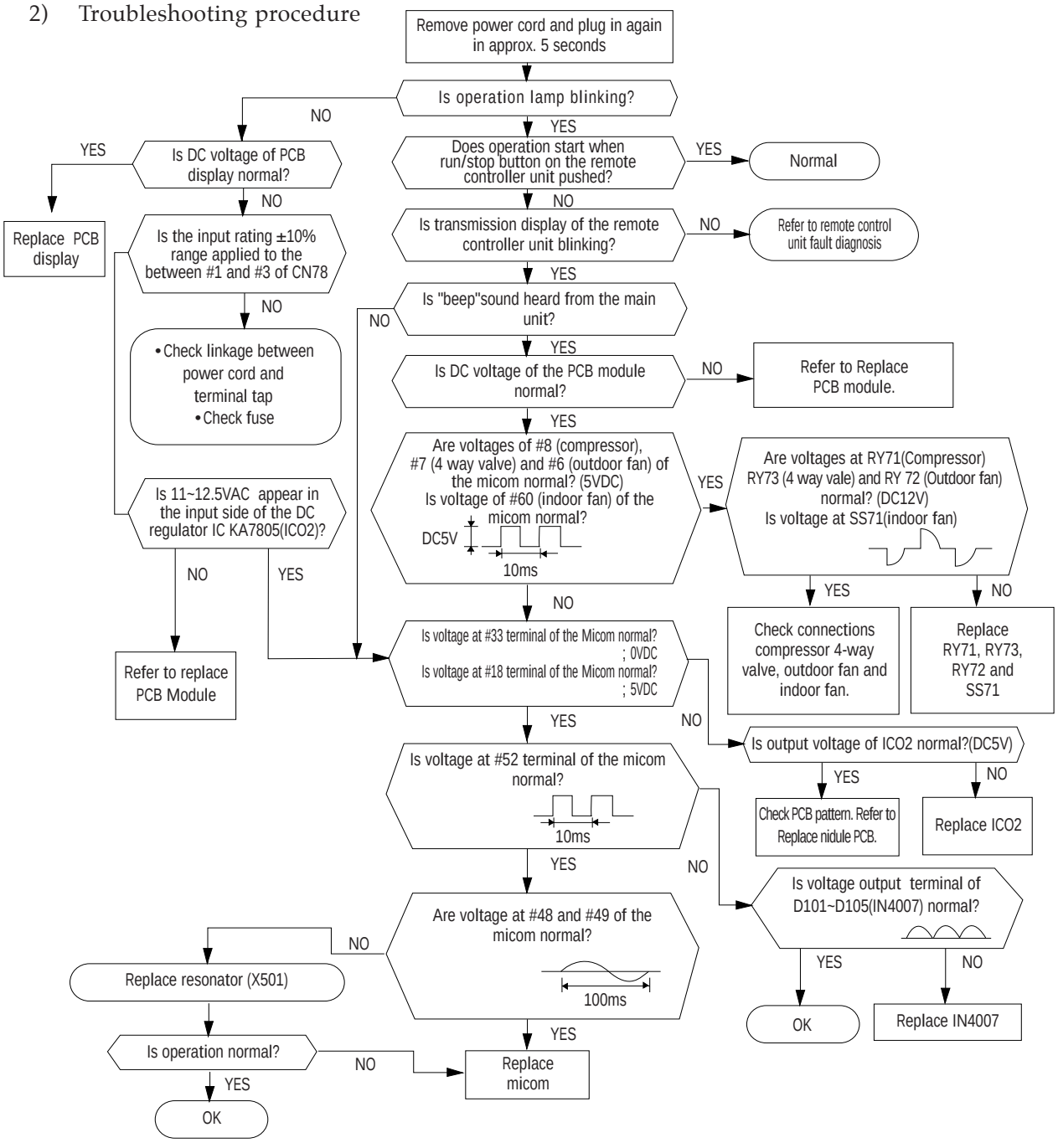
4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

NO	Display	Self Diagnosis
1	STD LED blinking (1Hz)	Restore from power failure (input initial power)
2	TIMER LED blinking (1Hz)	Indoor unit Room sensor Error (open or short)
3	STD and TIMER LED blinking (1Hz)	Indoor unit heat exchanger temperature sensor Error (open or short)
4	BIO LED blinking (1Hz)	Indoor fan malfunctioning (for speed is Below 450rpm)
5	STD, BIO and TIMER LED blinking(IUZ)	EEPROM Error
6	All LED blinking (1Hz)	Option Error (Option wasn't setup or option data error)

5-2-1 No Power (completely dead)-Initial diagnosis

1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is AC power linked correctly?
   (3) Are connections between primary side, secondary side of the power transformer and PCB good.
   (4) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11VDC-12.5VDC)
   (5) Is input voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

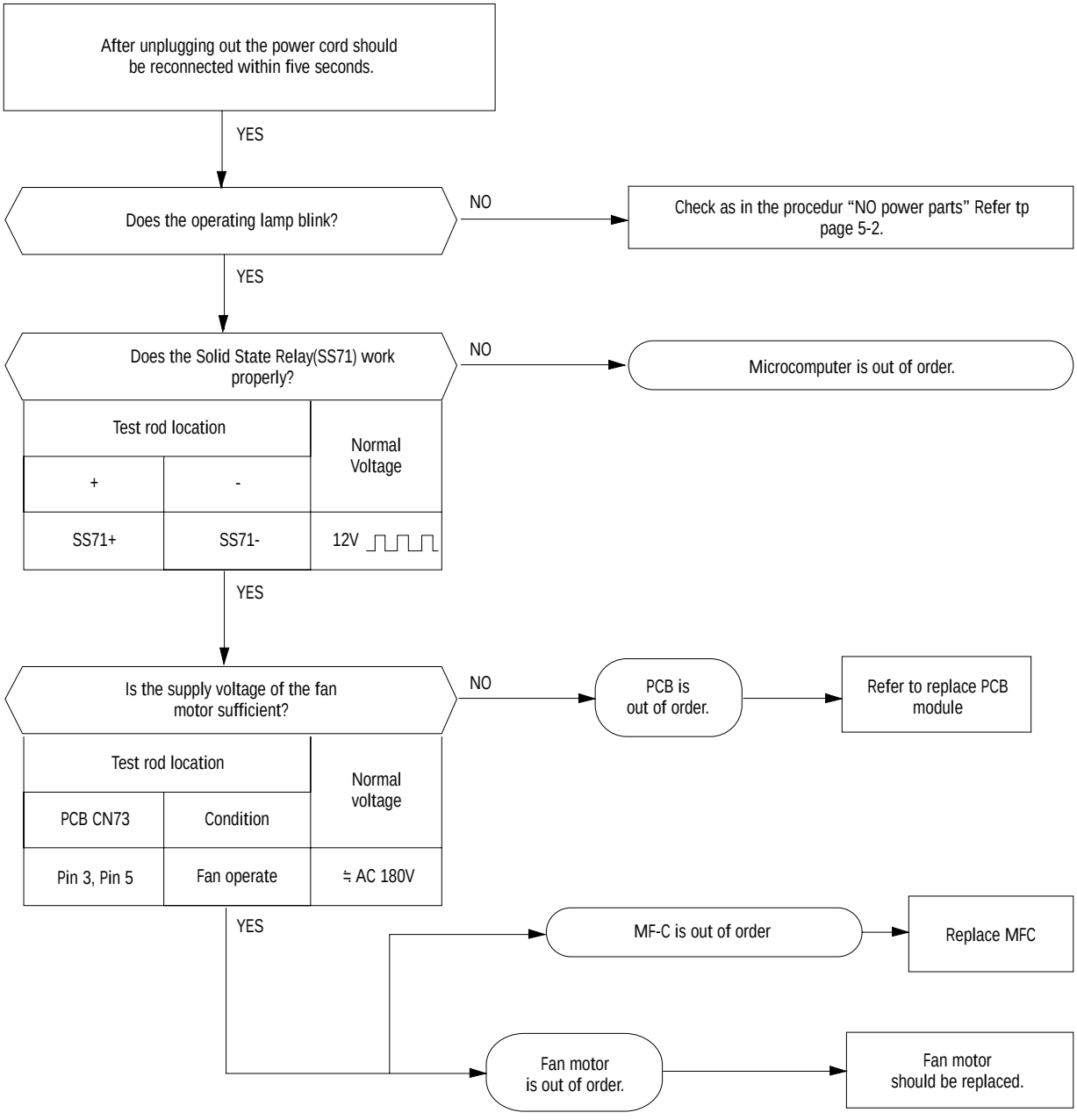
2) Troubleshooting procedure


Remove power cord and plug in again in approx. 5 seconds
Is operation lamp blinking?
NO
YES
Is DC voltage of PCB display normal?
YES
Replace PCB display
NO
Is the input rating ±10% range applied to the between #1 and #3 of CN78
NO
• Check linkage between power cord and terminal tap
• Check fuse
Is 11~12.5VAC appear in the input side of the DC regulator IC KA7805(ICO2)?
NO
YES
Refer to replace PCB Module
Does operation start when run/stop button on the remote controller unit pushed?
YES
Normal
NO
Is transmission display of the remote controller unit blinking?
NO
Refer to remote control unit fault diagnosis
YES
Is "beep"sound heard from the main unit?
NO
YES
Is DC voltage of the PCB module normal?
NO
Refer to Replace PCB module.
YES
Are voltages of #8 (compressor), #7 (4 way valve) and #6 (outdoor fan) of the micom normal? (5VDC)
Is voltage of #60 (indoor fan) of the micom normal?
DC5V
10ms
YES
Are voltages at RY71(Compressor) RY73 (4 way vale) and RY 72 (Outdoor fan) normal? (DC12V)
Is voltage at SS71(indoor fan)
YES
NO
Check connections compressor 4-way valve, outdoor fan and indoor fan.
Replace RY71, RY73, RY72 and SS71
NO
Is voltage at #33 terminal of the Micom normal? ; 0VDC
Is voltage at #18 terminal of the Micom normal? ; 5VDC
YES
NO
Is output voltage of ICO2 normal?(DC5V)
YES
NO
Check PCB pattern. Refer to Replace nidule PCB.
Replace ICO2
Is voltage at #52 terminal of the micom normal?
10ms
YES
NO
Is voltage output terminal of D101~D105(IN4007) normal?
YES
NO
OK
Replace IN4007
Are voltage at #48 and #49 of the micom normal?
100ms
NO
YES
Replace resonator (X501)
Is operation normal?
NO
YES
Replace micom
OK

5-2-2 When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)

1) Checklist :
   (1) Is the indoor unit fan motor properly connected with the connector (CN73)?
   (2) Is the AC voltage correct?
   (3) Is HALL IC in indoor fan motor properly connected with the connector (CN43)?
   (4) Is the running capacitor properly connected with the solder part of the PCB?

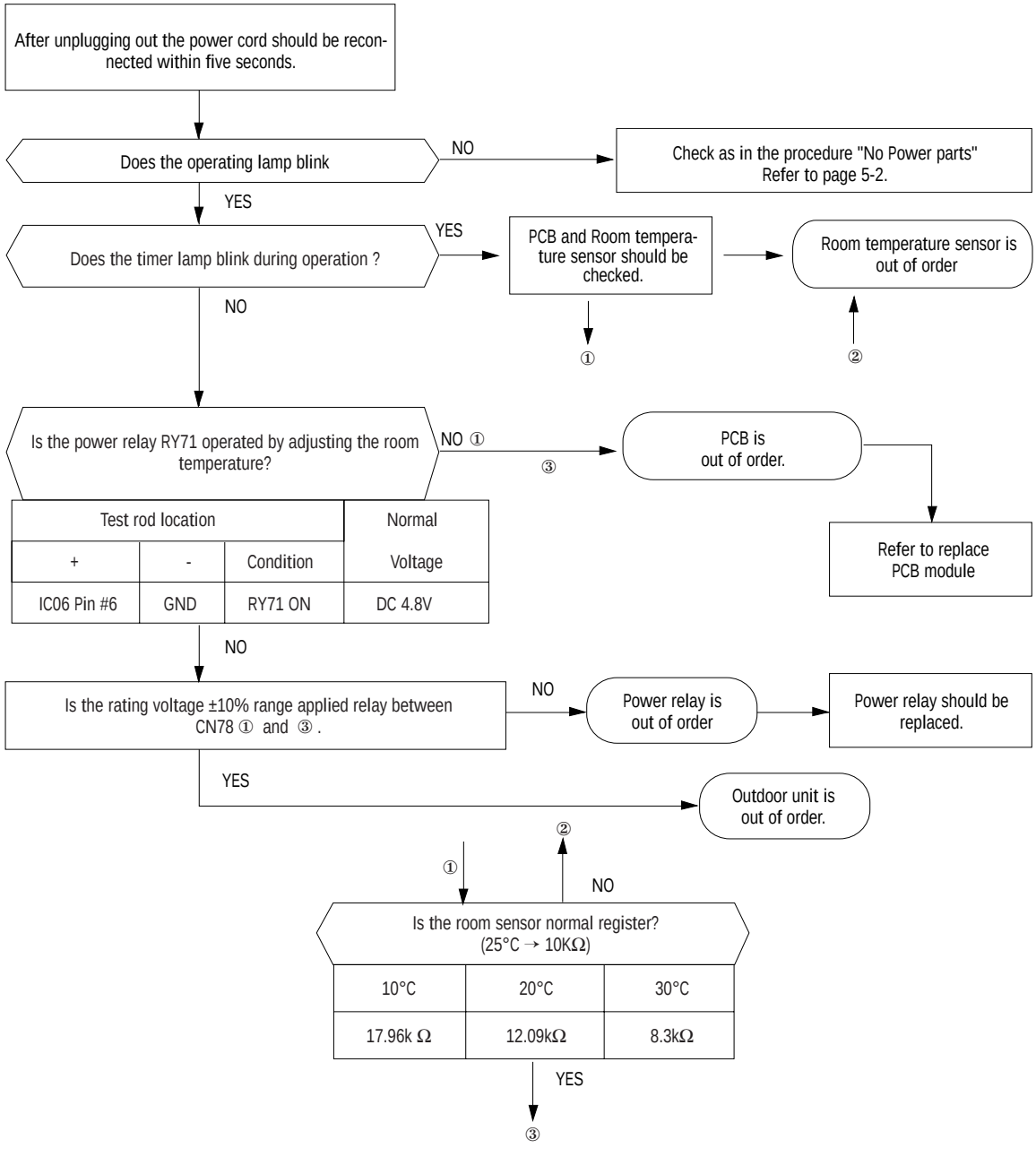
2) Troubleshooting procedure



5-2-3 When the Outdoor Unit Does Not Operate. (Initial Diagnosis)

1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
   (3) Is the set temperature of the remote control lower than room temperature in HEAT mode?
   (4) Is the POWER IN connector (CN78) linked correctly?
   (5) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(7P)?

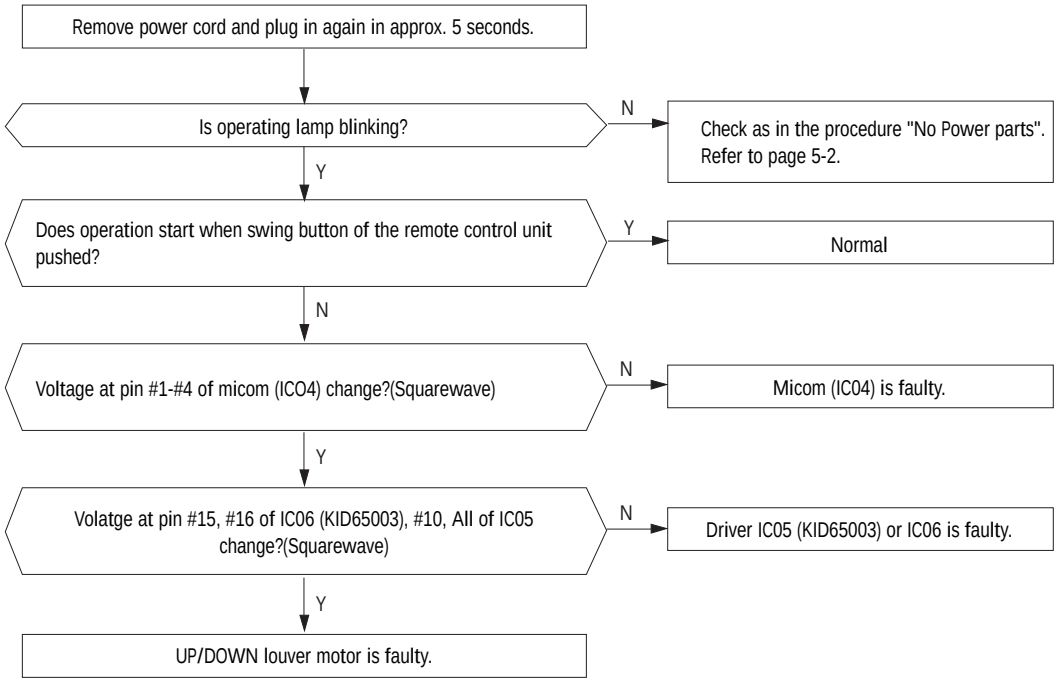
2) Troubleshooting procedure



5-2-4 When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)

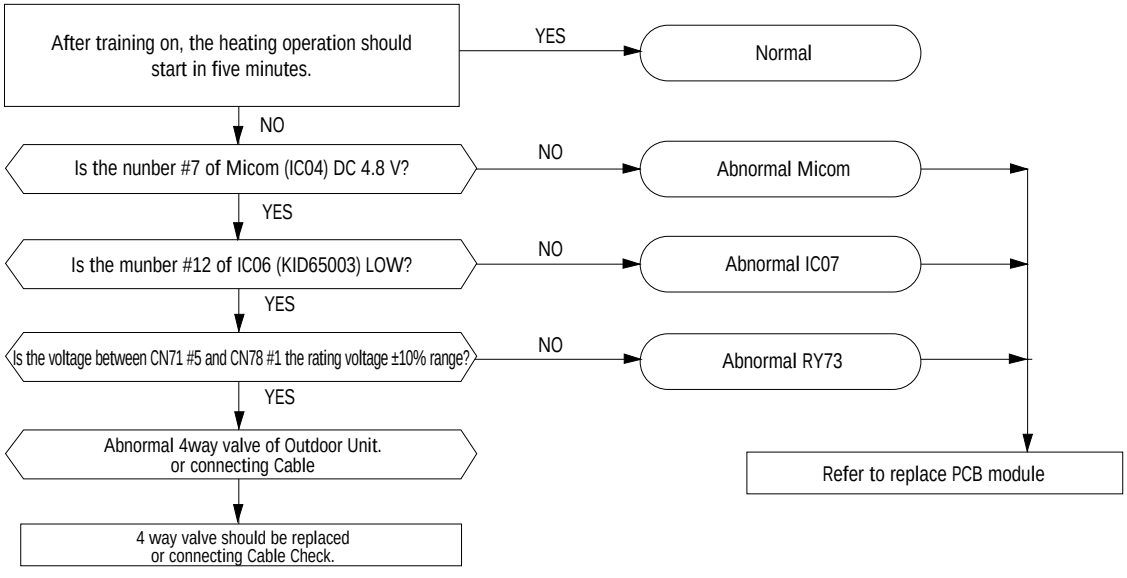
1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is the UP/DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure


Remove power cord and plug in again in approx. 5 seconds.
Is operating lamp blinking?
N
Check as in the procedure "No Power parts". Refer to page 5-2.
Y
Does operation start when swing button of the remote control unit pushed?
Y
Normal
N
Voltage at pin #1-#4 of micom (ICO4) change?(Squarewave)
N
Micom (IC04) is faulty.
Y
Volatge at pin #15, #16 of IC06 (KID65003), #10, All of IC05 change?(Squarewave)
N
Driver IC05 (KID65003) or IC06 is faulty.
Y
UP/DOWN louver motor is faulty.

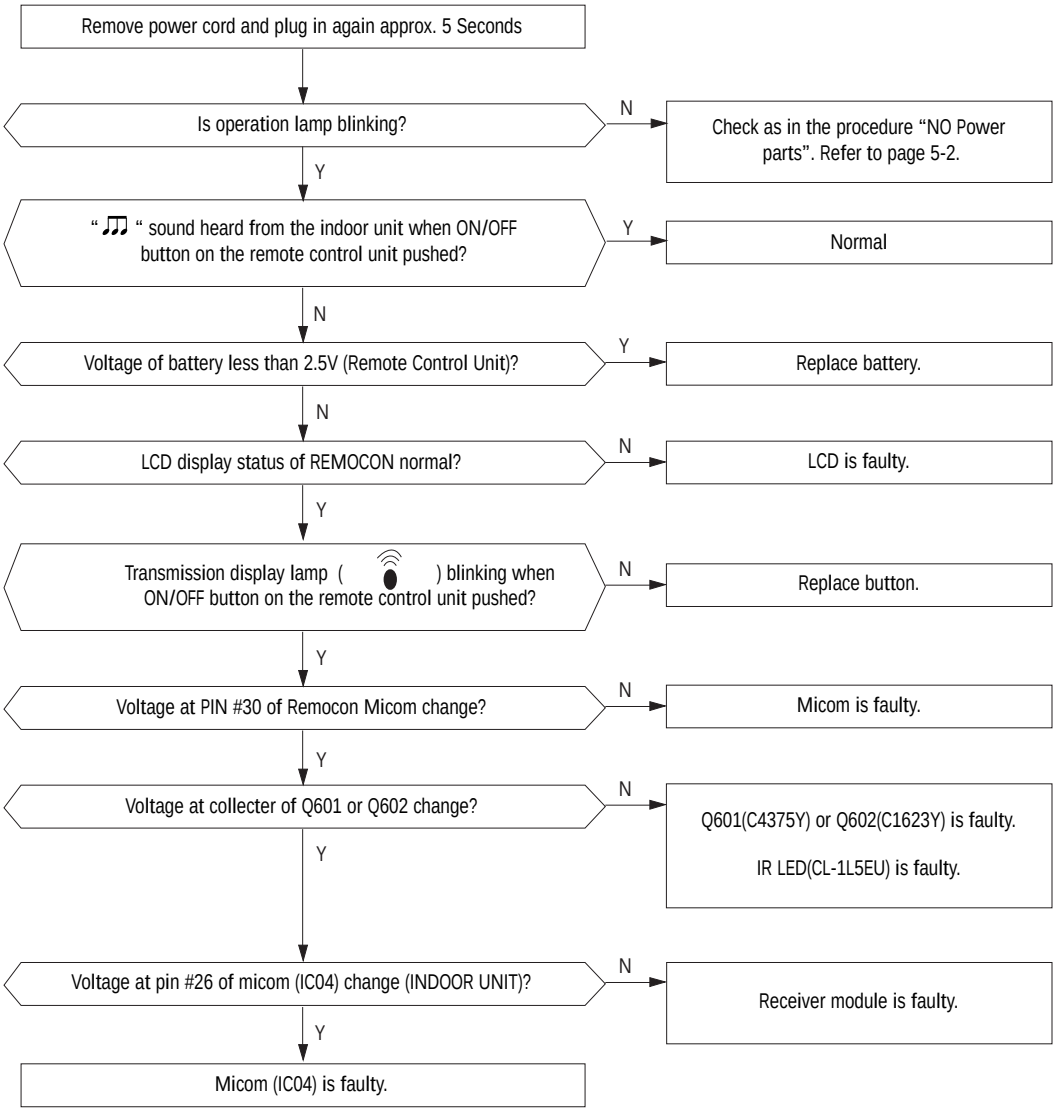
5-2-5 In the Heat mode, When there is no warm air current. Check this first;

(1) Is the set temperature of Remote Control lower than room temperature in Heat mode?
(2) Is the Indoor PCB properly connected with the CN71 and CN78 connector?


After training on, the heating operation should start in five minutes.
YES
Normal
NO
Is the nunber #7 of Micom (IC04) DC 4.8 V?
NO
Abnormal Micom
YES
Is the munber #12 of IC06 (KID65003) LOW?
NO
Abnormal IC07
YES
Is the voltage between CN71 #5 and CN78 #1 the rating voltage ±10% range?
NO
Abnormal RY73
YES
Abnormal 4way valve of Outdoor Unit. or connecting Cable
Refer to replace PCB module
4 way valve should be replaced or connecting Cable Check.

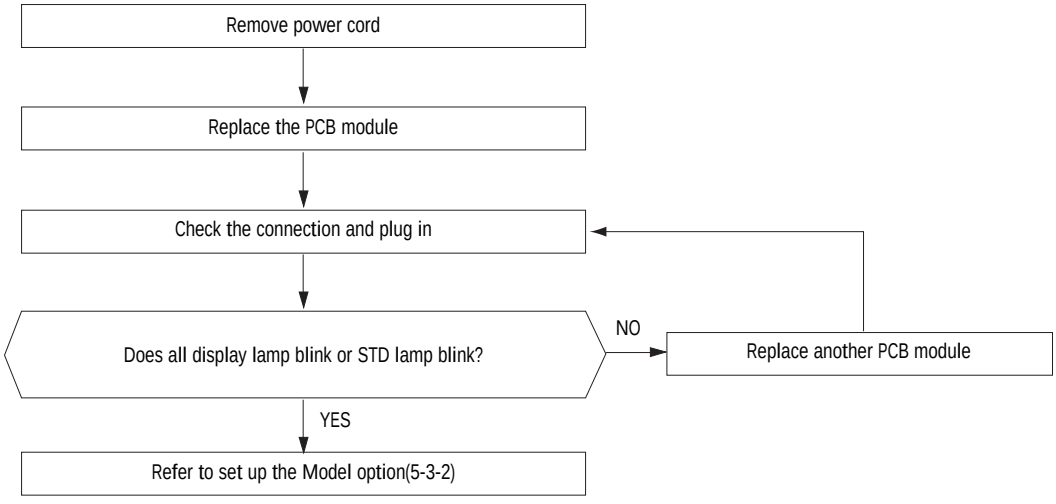
5-2-6 If Operation By Remote Control Unit Is Impossible. (Initial Diagnosis)

1) Troubleshooting procedure


Remove power cord and plug in again approx. 5 Seconds
Is operation lamp blinking?
N
Check as in the procedure “NO Power parts”. Refer to page 5-2.
Y
“ ♫ “ sound heard from the indoor unit when ON/OFF button on the remote control unit pushed?
Y
Normal
N
Voltage of battery less than 2.5V (Remote Control Unit)?
Y
Replace battery.
N
LCD display status of REMOCON normal?
N
LCD is faulty.
Y
Transmission display lamp ( ) blinking when ON/OFF button on the remote control unit pushed?
N
Replace button.
Y
Voltage at PIN #30 of Remocon Micom change?
N
Micom is faulty.
Y
Voltage at collecter of Q601 or Q602 change?
N
Q601(C4375Y) or Q602(C1623Y) is faulty.
IR LED(CL-1L5EU) is faulty.
Y
Voltage at pin #26 of micom (IC04) change (INDOOR UNIT)?
N
Receiver module is faulty.
Y
Micom (IC04) is faulty.

5-3 Replace PCB module

5-3-1 Replace PCB module


Remove power cord
Replace the PCB module
Check the connection and plug in
Does all display lamp blink or STD lamp blink?
NO
Replace another PCB module
YES
Refer to set up the Model option(5-3-2)

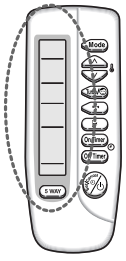
5-3-2 Set up the Model option

The Method for Setting up the model option with remocon

- **It is necessary to set up option code after replacing the main-PBA as a service parts.**
  Make sure that you can set up the option of code the remote controller after you replace the main PBA otherwise, the unit won't be working properly and all LED lamps on display will be flickering.

Step 1 : Preparing the remocon to main PBA option set

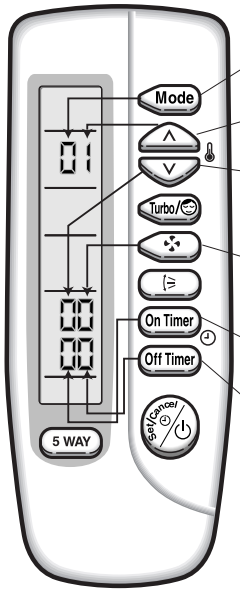
1st Remove the battery from the remocon.
2nd Press the temperature raise/down button simultaneously and insert the battery again.
3rd Make sure the remocon display shown as 00 00 00.



Step 2 : Second stage preparation of the remocon option set.

✵ **Note** ; In case the wrong letter has been selected, continue to press the button until the correct letter appears.

1st If the first stage number "0" appears on the display, proceed to the second stage.
2nd Every time the ① and ⑦ button, "0" and "1" each continue to appear.
3rd Whenever pressing the ②, ③, ④, ⑤, ⑥, ⑧, ⑨, ⑩, ⑪, ⑫ button, the number increase from 0~9(0123456789) and A, b, C, d, E, F each time.



① If the first number is 0, it is correct otherwise press Mode until 0 appear.

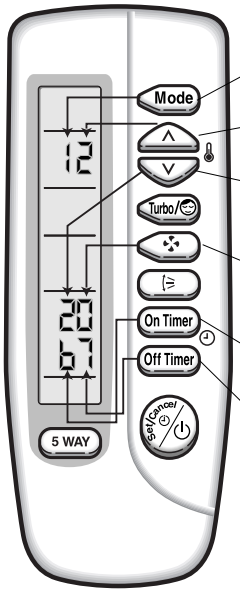
② When pressing the ∧ button 0 ~ F appear on the display, select one of them.

③ When pressing the ∨ button 0 ~ F appear on the display, select one of them.

④ When pressing the fan button 0 ~ F appear on the display, select one of them.

⑤ When pressing the On Timer button 0 ~ F appear on the display, select one of them.

⑥ When pressing the Off Timer button 0 ~ F appear on the display, select one of them.



① If the first number is 1, it is correct otherwise press Mode until 1 appear.

② When pressing the ∧ button 0 ~ F appear on the display, select one of them.

③ When pressing the ∨ button 0 ~ F appear on the display, select one of them.

④ When pressing the fan button 0 ~ F appear on the display, select one of them.

⑤ When pressing the On Timer button 0 ~ F appear on the display, select one of them.

⑥ When pressing the Off Timer button 0 ~ F appear on the display, select one of them.

Step 3 : Reconfirming option set after completion

(in case of ex. 017d25-17021d)

After pressing Mode selector for the 0 mode, the display shown as 01 7d 25.
After pressing Mode selector for the 1 mode, the display shown as 17 02 1d.

Step 4 : Pressing the ON/OFF button (⏻)

When pressing the operation ON/OFF key with the direction of remote controller for unit, the sound "Ding" or "Diriring" is heard and the first LED lamp on the left side is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

Step 5 : Unit operation test-run

First, Remove the battery from the remote controller.
Second, Re-insert the battery into the remote controller.
Third, Press ON/OFF key with the direction of remote controller for set.

• Error Mode

1st If all lamps of indoor unit are flickering, Plug out and plug in again and pressing ON/OFF key to retry.

2nd If the unit is not working properly or all lamps are continuously flickering after setting the option code, see if the correct option code is set up for it's model.

■ OPTION ITEMS

REMOCON / MODEL	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
AQT24A(B)5(6)RE	0	9	4	6	1	7	1	A	0	2	3	F
SH24TA(B)5	0	9	4	6	1	7	1	A	0	2	3	F
AQT24A(B)6RE	0	8	4	6	1	7	1	A	0	2	3	F
AQT24A(B)6RB	0	8	4	6	1	7	1	A	0	2	3	F
AST24A(B)5RE	0	9	0	0	0	0	1	A	0	2	3	F
SC24TA(B)5	0	9	0	0	0	0	1	A	0	2	3	F
AST24A(B)6RE	0	8	0	0	0	0	1	A	0	2	3	F
AST24A(B)6RB	0	8	0	0	0	0	1	A	0	2	3	F
AQT18A(B)9RE	0	9	7	4	1	7	1	A	0	0	F	B
AQT18A(B)0RE	0	8	7	4	1	7	1	A	0	0	F	B
AQT18A(B)0RB	0	8	7	4	1	7	1	A	0	0	F	B
AQ18A(B)9RE	0	9	4	4	1	7	1	A	0	2	1	D
SH18ZA(B)9	0	9	4	4	1	7	1	A	0	2	1	D
AQ18A(B)0RE	0	8	4	4	1	7	1	A	0	2	1	D
AST18A(B)9RE	0	9	0	0	0	0	1	A	0	0	F	B
AST18A(B)0RE	0	8	0	0	0	0	1	A	0	0	F	B
AST18A(B)0RB	0	8	0	0	0	0	1	A	0	0	F	B
AS18A(B)9RE	0	9	0	0	0	0	1	A	0	2	1	D
SC18ZA(B)9	0	9	0	0	0	0	1	A	0	2	1	D
AS18A(B)0RE	0	8	0	0	0	0	1	A	0	2	1	D

5-4 PCB Inspection

5-4-1 Cautions for Part Replacement

1. The human body carries much static electricity. Before touching a part for repair, replacement or the similar purpose, be sure to touch a grounded metallic portion by hand to let the static electricity go through the metallic portion to the earth. Especially when handling any micro computer or IC, carefully remove such static electricity before touching them.

2. When repairing any part on a work bench, be sure to place an insulative sheet on the bench and always keep the sheet surface neat without any metal fragments. If any such fragment touches a part, a secondary trouble will possibly be caused in the part.

3. Before replacing any parts, be sure to turn off the power supply. If such replacement is done with the power supply kept on, an electric shock, short circuit or destruction of a part may result.

4. During replacement or repair of a part, carefully handle it : The printed circuit board has fine lead wires (jumper wires) and glass-made parts (diode) on its substrate. So if a circuit board is roughly handled, such lead wires and parts will be easily broken or damaged by bending or shock.

5. When soldering the lead wires of any new part, be sure to polish them using an emery paper or the like before solding them. Since the lead wires of any new part are covered with an oxide film, solder cannot adhere to the lead wires if not polished.

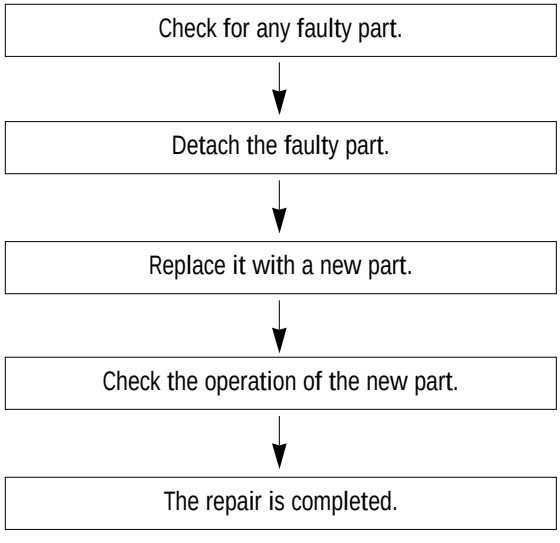
6. When soldering any part, care should be exercised not to apply any high-wattage soldering iron to the part for a long time. Some parts are of so low a heat resistance that they may be broken or have the properties changed if a soldering iron is so applied (Otherwise, the pattern may possibly be separated and raised).

7. The heat of the soldering iron should be transfered to the entire object to be soldered. If the solder pieces are not well fused due to insufficient transfer of the heat from the soldering iron, no satisfactory electrical continuity can be assured even if the soldered objects appear well connected to each other.

8. The solder used should be limited to a minimum. If excessive solder is used, it will cause inter-pattern contact, which may cause malfunction of the circuit.

5-4-2 Procedure

The parts should be replaced in the following procedure.


Check for any faulty part.
Detach the faulty part.
Replace it with a new part.
Check the operation of the new part.
The repair is completed.

5-4-3 Detailed Procedure

No.	Malfunction	Checking point (symptoms)	Causes
1	Pull out the power plug from the AC terminal and confirm the fuse on the PCB assembly	1. Is the broken?	1. Voltage over 2. Indoor unit fan motor short-circuit.
2	Turn the power on. If lamp blinks trouble is not related to the items 1 through 4 on the right.	Voltage check	
		1. AC voltage at both end of transformer Primary? ; rating voltage ±10% range	1. Irregular power code or power fuse, or poor wiring.
			2. Transformer is faulty.
		3. DC voltage at OUT and GND of IC01 (KA7812)? ; 12VDC	3. Power circuit is faulty.
		4. DC voltage at OUT and GND of IC02? ; 5VDC	4. Power circuit is faulty.
		5. DC voltage at Q201 Base and GND change? ; squarewave	5. Q201 is faulty.
3	Set operating mode when RMC switch pushed. Except for [FAN]mode and [TIMER] mode.	Voltage check	
		1. Voltage of relay (RY71) coil Voltage at PIN#11, PIN#12, PIN#15 of IC07 ; 12VDC	1. Relay(RY 71) coil is open. IC07 is faulty.
		2. Voltage at CN78 #1 and CN78 #5 ; rating voltage ±10% range	2. Relay(RY 71) contactor is faulty.
4	Set operating mode when RMC switch pushed. 1. COOL mode 2. TURBO operating	1. Compressor does not operate.	1. PCB is faulty. 2. Connecting is faulty.
5	Set operating mode when RMC switch pushed. 1. HEAT mode 2. TURBO operating	1. Compressor does not operate	1. PCB is faulty. 2. Connecting is faulty.
6	Set operating mode when RMC switch pushed. 1. [FAN] mode 2. Fan speed [Hi] 3. Continuously operation	1. Voltage at ③ ⑤ both ends of CN73 : above 180V~	1. Indoor unit fan motor is faulty.
		2. Indoor unit fan motor does not operate.	2. Poor connection of indoor fan motor and connector of RPM sensing (CN43)

MEMO